

## REMARKS

In response to the pending Office Action, Applicants have amended claim 9 so as to address the objection thereto set forth in paragraph 2 of the Office Action. Applicants note with appreciation the indication of allowable subject matter in claims 4-8. In view of the following remarks, it is respectfully submitted that all claims are in condition for allowance.

Claims 1-3 and 9 stand rejected under 35 U.S.C. § 102 as being anticipated by Lee et al. '871 ("Lee"). Claims 1 and 9 are independent. This rejection is respectfully traversed for the following reasons.

Claim 1 recites in pertinent part, "wherein a dopant layer including refractive index-lowering molecules is provided **around** said optical waveguide core ...; and wherein said refractive index-lowering molecules ... are unevenly distributed **in** said optical waveguide core with a concentration that is higher **toward** outer sides and corners **of said optical waveguide core**" (emphasis added). Claim 9 similarly recites in pertinent part, "wherein a low refractive index layer including refractive index-lowering molecules is formed **around** said optical waveguide core; wherein said **optical waveguide core** includes said refractive index-lowering molecules **at its periphery**, and wherein said refractive index-lowering molecules are distributed with higher concentration **toward** the outer sides **of said optical waveguide core**" (emphasis added). Accordingly, as the refractive index of the **core** layer can be graded toward the periphery of the core, optical losses due to dispersion can be reduced so that signal light can be transmitted at a higher speed and with lower losses.

On the other hand, Lee merely discloses a graded-layer 103 which covers the core 101 rather than being formed as part of the core 101 at the periphery thereof. In fact, Figure 2 of Lee expressly discloses that the index is constant across the entire cross-section of the core 101 so that the core 101 itself does not have a graded-index but instead is surrounded by a graded-layer 103. Indeed, Lee identifies the core 101 as a "high-index core" so as to further emphasize that the core itself does not have a graded-index therein but rather is fixed with a high-index.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that Lee does not anticipate claims 1 and 9, nor any claim dependent thereon.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1 and 9 are patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on all the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 102 be withdrawn.

**CONCLUSION**

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

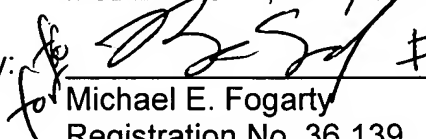
To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT, WILL & EMERY

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